



TEST REPORT SUMMARY

FOAM WITH BIOCRYSTAL® MIXTURE

Scientific test report for anti-stress effect on human organism

Funding: BC Tech d.o.o.; Žrtava fašizma 2, 51 000 Rijeka (www.biocrystal.eu)

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TYPE OF TESTING:

Producer's claims were examined with a scientific, clinical study design, which means that the testing procedure was:

- **Prospective** (the general criteria for activity efficiency were selected in advance).
- **Placebo controlled** (test subjects in a placebo group were not exposed to the test's object influence and test subjects did not know whether they were exposed to real or placebo influence).
- **Double blind** (neither the participants nor the main researcher knew which participant was exposed to the test object influence or belonged to the control group).
- **Randomized** (test subjects were randomly selected to be exposed to the test object influence or just to placebo).

TESTING PARAMETERS:

Measuring physiological parameters enables us to monitor the changes in a certain person's body in real time. We can monitor the state of a testee throughout the measuring time. We measure the following parameters:

- **Heart rate** (frequency of heart rate HR) is seen from electrocardiogram, from which we can deduct heart rate variability (HRV).
- **Muscle activity** (electromyogram, EMG) is measured on the left forearm. This shows us any artefacts that could appear on the EKG due to the testees moving arms.
- **Skin conductance** (SC) and external **body temperature** (TEMP) are measured on the fingertips of the left hand, where skin conductance varies the most. In general terms, skin conductance *is higher when a person is under stress* (more sweating, higher blood flow).
- **Course of respiration** (RESP) is monitored with a special extendable elastic belt, measuring the expansion of thorax, which makes it possible to calculate the number of breaths per minute (BPM – respiration rate) and breathing depth (RESPV).

The tests were conducted from 18th to 27th January 2017 at the Bion Institute with 10 testees aged from 23 to 55 (seven women and three men). Each person was tested twice (in two different days), each time at the same hour.

During measurements testees sat for approximately half an hour in a comfortable chair while skin conductance, heart rate, muscle activity, respiration rate and body temperature at the tip of the finger were measured. Throughout the testing process, the Biocrystal® or control foam was placed on a wooden chair and covered with cotton cloth so that nobody could know which one was being used. Testees were seated directly on the cotton cloth. The testees were exposed to an average environmental electromagnetic pollution to be as close to ordinary life situations as possible.

The entire procedure was divided into two parts:

- the first half of the test: from the beginning to 12 minutes 30 seconds,
- the second half of the test: from 12 minutes 30 seconds to 25 minutes.

RESULTS:

Overview of results showed that the influence of the foam with Biocrystal® was the most significant for the **respiration rate** and **body temperature**. For these two parameters the analysis showed statistically significant differences in median values between BF and CF in both halves of the test.

Respiration Rate

There is a difference between BF and CF from 5:00 minutes onward when **values for respiration rate increased for testees sitting on BF** while values for CF remained more or less constant. **Higher respiration rate is usually correlated with higher metabolic activity**. It seems that BF induced some internal response in testees that **increased oxygen consumption**.

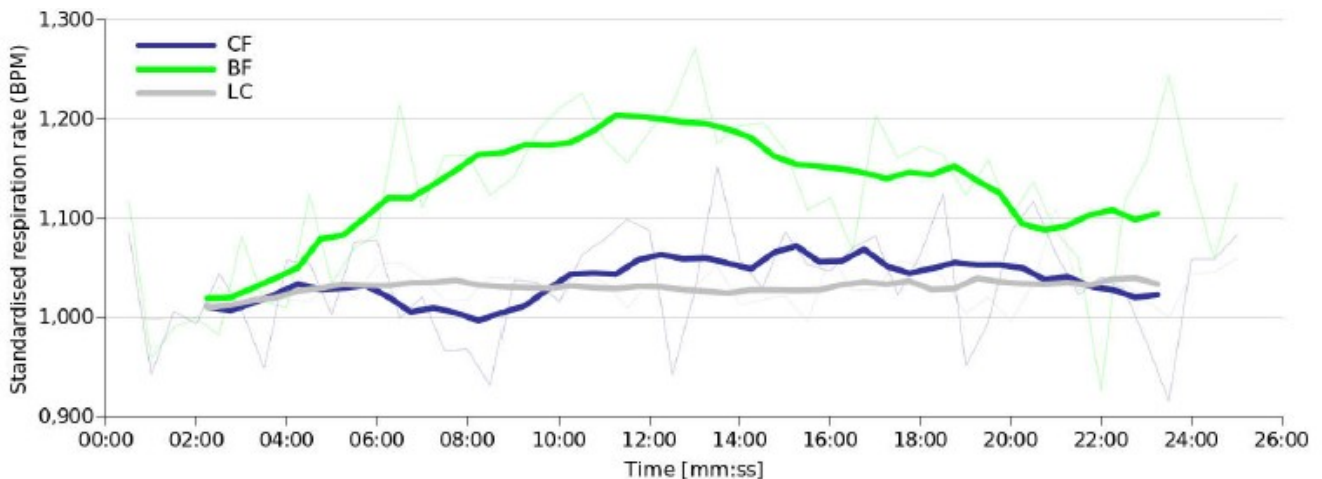


Figure 3: Standardised values for respiration rate (BPM) calculated with medians of the ten testees for Biocrystal (green line, BF) and for control foam (blue line, CF). LC represents long time average for control group of all the measurements we have done for this energy influence (gray line). The thinner lines in the back show the thirty-second medians, over which we made the moving average (more intensive lines at the front).

Temperature Response

A clear difference between BF and CF is visible from **temperature response** too (Figure 4). For both BF and CF body temperature of testees increased until around 6:00 minutes, after that it remained more or less constant. However, it increased much faster and achieved higher values for

CF compared to BF. In comparison with long-term control, it is clearly visible that values for BF are closer to LC than values for CF. It is somehow surprising as values for LC and for CF were expected to be close together. We assume that there was higher (ordinary) electromagnetic pollution than normally and that in this case **the BF demonstrated strong protective effect** as it is close to LC.

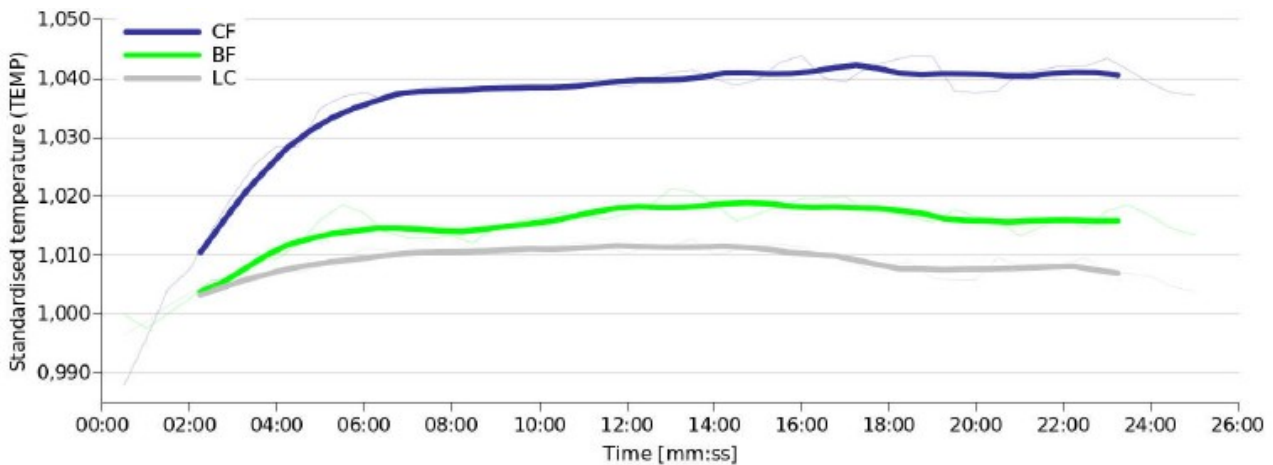


Figure 4: Standardised values for temperature (TEMP) calculated with medians of the ten testees for Biocrystal (green line, BF) and for control foam (blue line, CV). LC represents long time average for control group of all the measurements we have done for this energy influence (gray line). The thinner lines in the back show the thirty-second medians, over which we made the moving average (more intensive lines at the front).

Muscle activity

Difference between BF and CF for muscle activity can be seen in the second half of measurements only (Figure 5). Its values in this period were **lower for BF** as they were more constant than those for CF which gradually increased until 21:00 minutes when difference between them was the greatest. Lower values for muscle activity normally mean **higher relaxation**.

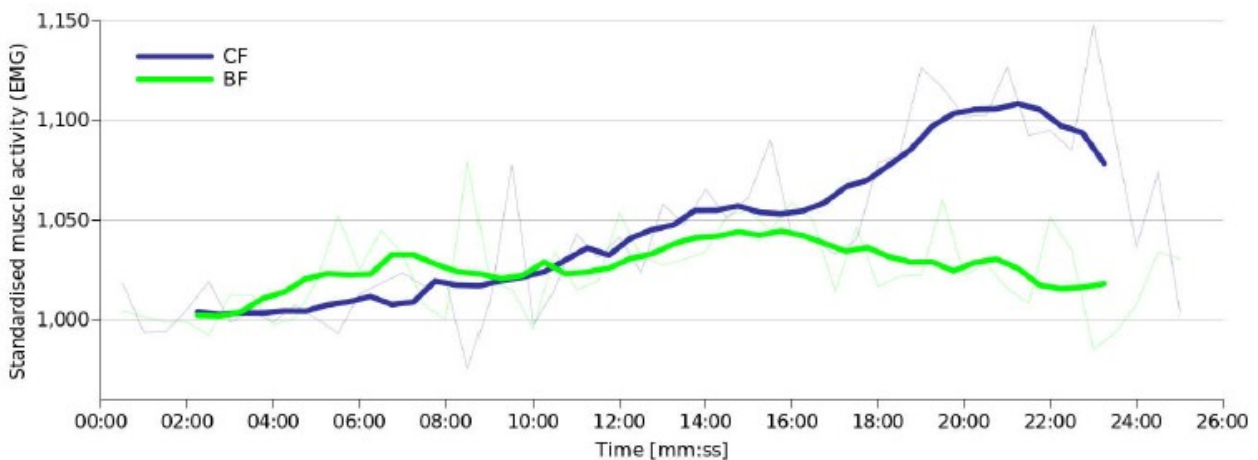


Figure 5: Standardised values for muscle activity (EMG) calculated with medians of the ten testees for Biocrystal (green line, BF) and for control foam (blue line, CF). The thinner lines in the back show the thirty-second medians, over which we made the moving average (more intensive lines at the front).

Heart rate

The **values for heart rate are lower for BF** compared to CF in the second half of measurements (Figure 6). Values for both foams decline gradually over time only that decrease is faster for BF. However around 23:00 minutes a fast increase is visible for BF so that there was no difference between both foams at the end of measurements. Lower values for heart rate usually correlate **with higher relaxation or** with lower physical activity. Therefore, this goes in harmony with lower muscle activity by further indicating a higher relaxation.

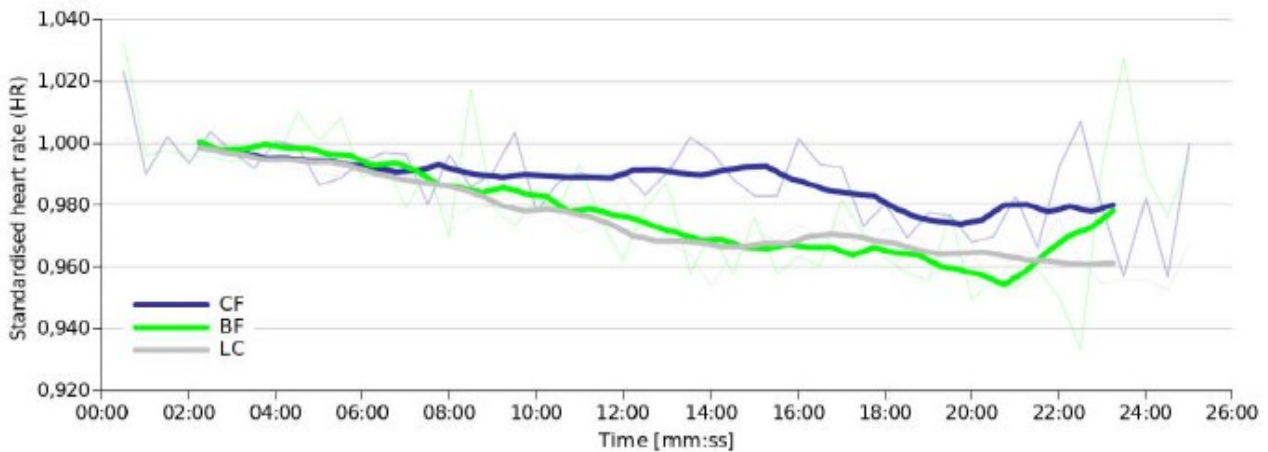


Figure 6: Standardised values for heart rate (HR) calculated with medians of the ten testees for Biocrystal (green line, BF) and for control foam (blue line, CF). LC represents long time average for control group of all the measurements we have done for this energy influence (gray line). The thinner lines in the back show the thirty-second medians, over which we made the moving average (more intensive lines at the front).

Skin conductance

Statistical analysis nevertheless showed significant differences in the second half of the measurements (Figure 7). Values for BF are generally lower in this period of measurements than those for CF and this indicates **higher relaxation for BF**.

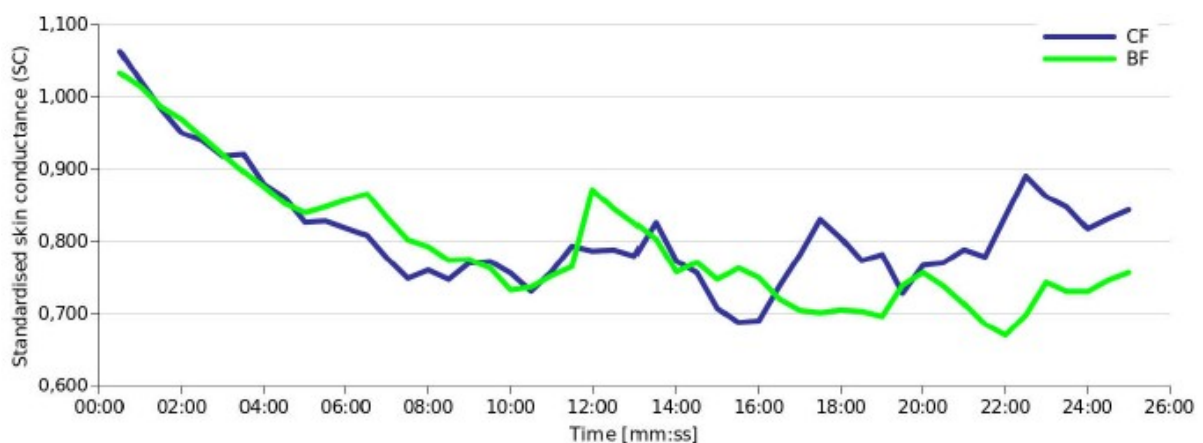


Figure 7: Standardised values for skin conductance (SC) calculated with medians of the ten testees for Biocrystal (green line, BF) and for control foam (blue line, DF).

CONCLUSION

The measurements of "Foam with Biocrystal® mixture" demonstrated that it influenced the testees, and we could observe statistically significant differences between Biocrystal® foam and control foam by monitoring different physiological parameters.

The device's energy influence was observed in both halves of measurements for respiration rate and temperature, in the first half for course of respiration and in the second half for muscle activity, heart rate and skin conductance.

Decreased values for **temperature, muscle activity, heart rate, skin conductance and course of respiration** indicate that testees were **more relaxed** when exposed to Biocrystal® foam compared to control foam.

At the same time foam with Biocrystal® induced **higher metabolic activity** as it was indicated by **higher respiration rate** compared to control.

The product Foam with Biocrystal® mixture met all the criteria which prove the **anti-stress effect** on Human Organism.